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JUPITER.

THE SUN.

1895.		R. A.	Declination.	Rises.	Transits.	Sets.
		H. M.		H. M.	H. M.	H. M.
Oct.	I.	8 28	+ 19 26	12 37 A.M.	7 49 A.M.	3 1 P.M.
	11.	8 34	+ 19 7	12 4	7 15	2 26
	21.	8 39	+ 18 51	11 31 P.M.	6 41	1 51
	31.	8 43	+ 18 39	10 57	6 5	1 13

SATURN.

Oct.	I.	14 19	- 11 32	8 14 A.M.	1 38 P.M.	7 2 P.M.
	11.	14 23	- 11 55	7 40	1 3	6 26
	21.	14 27	- 12 18	7 8	12 29	5 50
	31.	14 32	- 12 41	6 34	11 54 A.M.	5 14

URANUS.

Oct.	I.	15 2	- 16 51	9 17 A.M.	2 21 P.M.	7 25 P.M.
	11.	15 4	- 17 0	8 40	1 44	6 48
	21.	15 6	- 17 10	8 3	1 7	6 11
	31.	15 8	- 17 20	7 27	12 30	5 33

NEPTUNE.

Oct.	I.	5 9	+ 21 27	9 9 P.M.	4 30 A.M.	11 51 A.M.
	11.	5 8	+ 21 27	8 29	3 50	11 11
	21.	5 8	+ 21 26	7 49	3 10	10 31
	31.	5 7	+ 21 24	7 9	2 30	9 51

ECLIPSE OF *JUPITER'S* FOURTH SATELLITE, 1895,
APRIL 11.

By JOHN TEBBUTT, F. R. A. S.

It is not often that one can get an observation of this satellite in eclipse, and still more rare is an observation at the beginning or end of a cycle of eclipses. It was pointed out by Mr. Marth (R. A. S. *Monthly Notices*, Vol. LIV, p. 587) that the first eclipse of the current cycle would occur on February 2d; and he recommended Australian observers to be on the watch in order to

decide whether the satellite really entered the shadow of its primary or merely skirted it.

Cloudy weather prevailed here at the time of this eclipse ; but, even if the sky had been clear, it would have been impossible to observe the phenomenon, as it was quite over before sunset. I trust that the United States astronomers were favored with a view of the eclipse of February 19th.

The first visible eclipse for New South Wales occurred on April 11th ; but, unfortunately, the disappearance took place before sunset. Everything was favorable for observing the reappearance. Aware of the great uncertainty in the predicted times for the early and late eclipses of a cycle, I took up my position at the eight-inch refractor about 16 minutes before the time fixed by the English Nautical Almanac. The sky was beautifully clear about the planet, and, although the altitude was small, the images were pretty steady and well defined. The magnifying power employed was 138, and the satellite was detected as the faintest possible speck at $7^h 42^m 39^s.9$ Windsor mean time, which corresponds to April 10th, $16^h 31^m 7^s.4$ Washington mean time. A comparison of this observation with the American Nautical Almanac, shows that the theoretical time is $11^m 53^s.1$ too late ; that is, if the phase given in the almanac is to be taken as the instant when the satellite *began* to emerge from the shadow. The error of the English Nautical Almanac is still greater. The recovery of the satellite's light was extremely slow, and it was not till $7^h 58^m 43^s$ that I felt assured it had attained its full brightness. There has been no eclipse of the fourth satellite visible here since April 11th, and the planet is now too close to the sun for observation. The above is the greatest discrepancy I have remarked between theory and observation since 1866. When I commenced the systematic observation of Jovian eclipses, the error of $10^m 14^s$ was observed in the English Nautical Almanac time for the eclipse disappearance of May 30, 1880.

THE OBSERVATORY, Windsor, 1895, June 16.